



## **Stormwater Management Program (SWMP) Plan**

**Last Updated: January 24, 2017**



**Prepared By:**

**Stormwater Services Division  
Public Works Department**

## **Background**

In 1987, Congress amended the federal Clean Water Act to include stormwater discharges in the National Pollutant Discharge Elimination System (NPDES) permit program. The Environmental Protection Agency (EPA) developed rules to implement the new stormwater requirements in two phases called Phase I and Phase II. The Washington State Department of Ecology (Ecology) implements these stormwater rules through municipal stormwater permits. The Phase I permit, which went into effect in 1990, covers large jurisdictions such as cities and counties serving more than 100,000 people. In 1999, EPA issued the Phase II stormwater permit regulations to cover stormwater discharges in urbanized areas that serve smaller populations (Ecology, 2006).

There are two separate Phase II municipal stormwater permits in the State of Washington, one for western Washington and one for eastern Washington. Ecology issued the NPDES Eastern Washington Phase II Municipal Stormwater Permit (Permit) in January 2007. The city of Pullman (City) applied for and was granted coverage under the Permit soon after. Eighteen other cities and six counties in eastern Washington are also covered under the Permit. The first Permit became effective February 16, 2007 and expired July 31, 2014. The second Permit became effective August 1, 2014 and is scheduled to expire July 31, 2019. This is the Permit the city is currently operating under. Washington State University (WSU) is covered under the same Permit, but is considered a “secondary permittee” within the jurisdiction of the City of Pullman.

The original Permit was designed to give jurisdictions an opportunity to develop their stormwater management programs and prepare for the second permit cycle which requires additional actions and an increased level of management and oversight. The City has spent the past ten years developing its stormwater management program in accordance with the requirements of the Permit, including adoption of new ordinances, updating policies and procedures, purchasing equipment, implementing projects and training staff.

The current Permit can be viewed in its entirety on Ecology’s website below.

<http://www.ecy.wa.gov/programs/wq/stormwater/municipal/phaseiiEwa/ewph2permit.html>

## **Hatley Creek Storm Drainage Basin Study**

In 2000, responding to citizen concerns and recognizing that stormwater runoff was a growing problem, the City hired consulting firm Gray & Osborne to conduct a study of the Hatley Creek drainage basin. Hatley basin is located in the southwest quadrant of town and drains approximately 760 acres (both city & county) which have experienced a high rate of development. The purpose of the study was to recommend a level of stormwater flow control that decreases the existing peak rate of stormwater runoff in the basin, as well as provide water quality benefits. As a result of the study, the City requires enhanced stormwater detention design standards for all new and re-development within the Hatley basin (Gray & Osborne, 2000).

## **The Water Quality Problem**

Pullman's network of storm drains is classified as a municipal separate storm sewer system (MS4). The storm drain system is separate from and therefore does not convey stormwater to the City's wastewater treatment plant. Stormwater runoff has been identified by Ecology as "the number one water pollution problem in the urban areas of our state" (Ecology, 2007). Pollutants commonly found in stormwater include detergents, fertilizers, pesticides, vehicle fluids, litter, sediment and pet waste. Unmanaged stormwater and neglected infrastructure can also contribute to problems associated with flooding.

Most storm drains within Pullman empty directly into the South Fork Palouse River (SFPR) or one of its main tributaries that flow through town. The tributaries include Sunshine Creek, Paradise Creek, Dry Fork Creek, Missouri Flat Creek and Hatley Creek. According to Ecology, the SFPR is on the State's list of impaired water bodies for not meeting water quality criteria for temperature, dissolved oxygen, pH and fecal coliform bacteria. Ecology has completed a Water Clean-up Plan or Total Maximum Daily Load (TMDL) for fecal coliform bacteria and is in the process of developing TMDLs for the remaining parameters. TMDLs have also been completed for Ammonia-N and Toxics (PCBs & Dieldrin) for the larger Palouse River basin, including the SFPR. Water quality sampling related to the TMDLs has shown that Pullman's stormwater quality is similar to other urban areas across the nation, indicating a need for a robust stormwater management program.

## **Stormwater Management Program (SWMP) Plan**

The Permit requires the City to develop and implement a comprehensive Stormwater Management Program (SWMP) Plan. An updated SWMP Plan documenting the actions the City plans to implement to satisfy State requirements and protect water quality is required to be made available to Ecology by March 31<sup>st</sup> and to the public by May 31<sup>st</sup> of each year. The most current SWMP Plan and other related documents are available on the City's Stormwater Services website below.

<http://www.pullman-wa.gov/departments/stormwater-services>

Early in 2007, the City hired consulting firm Otak, Inc. to assist with development of Pullman's first SWMP Plan. Otak worked closely with City staff and in September 2007 produced the *Final Stormwater Program Implementation Plan*. The Implementation Plan contains the following Sections:

- Background
- Stormwater Program Definition Process
- Regulatory Gap Analysis - Process & Results
- Detailed Annual Stormwater Program Implementation Matrices
- Resources Needed for Pullman's Updated Stormwater Program
  - Estimated Annual Program Revenue Needs & Sources
  - NPDES Equipment & Funding Needs
  - Capital Improvement Plan

As required by the Permit, the Implementation Plan addressed the following elements:

- Public Education and Outreach
- Public Involvement & Participation
- Illicit Discharge Detection & Elimination
- Construction Site Stormwater Runoff Control
- Post-Construction Stormwater Management for New Development and Redevelopment
- Pollution Prevention & Good Housekeeping for Municipal Operations
- Compliance with Total Maximum Daily Load (TMDL) Allocations
- Monitoring & Program Evaluation
- Reporting & Recordkeeping

In 2008 the City chose to create a Stormwater Services Division within the Public Works Department and hired a program manager to coordinate the activities identified in the Implementation Plan.

In January 2009, Otak, Inc. produced the *Stormwater Program Funding Alternatives and Financial Plan (FAFP)*. The FAFP included program and projected budget needs for the newly created program. The FAFP served as a necessary update to the Implementation Plan. Funding decisions related to the Stormwater Services Division now follow the City's annual budget development and approval process (see *Stormwater Utility* below).

Among other things, the Permit required the City to adopt ordinances addressing illicit discharge detection and elimination (IDDE), runoff from construction sites and post-construction stormwater management. The City adopted an IDDE ordinance in August 2009 which added a new Chapter 10.31 to Pullman City Code (PCC). The City also adopted a combined Construction and Post-Construction stormwater ordinance in January 2011 which added a new Chapter 10.32 to PCC.

A Stormwater Services Field Technician was hired in December 2009 to implement and enforce the provisions in these program areas. Also, in accordance with the Implementation Plan, stormwater program budget has been allocated to the Maintenance & Operations Division to perform maintenance activities related to the City's stormwater system. An operations and maintenance plan (O&M Plan) that prescribes regularly scheduled maintenance activities on the City's stormwater system has been developed. In 2011, the City purchased a jet-vector truck and other specialized equipment to begin implementing the O&M Plan. Also, budget is made available to other City divisions and departments including the Engineering Division which is reimbursed with Stormwater funds when providing surveying, drafting, mapping and other technical support.

### **Stormwater Utility**

Much like water supply and sanitary sewer systems, maintaining and replacing an aging storm drain infrastructure and providing other stormwater management services is very costly. In February 2009, the Pullman City Council created a storm drainage

and surface water management utility and corresponding enterprise fund to sustain the stormwater program. This provides a permanent tracking and financial planning mechanism as part of the city's overall budget development process. The annual budget for Stormwater Services is typically adopted by City Council in December of each year. The utility currently only charges fees for developed properties with impervious surfaces. In 2011, an Advisory Committee was formed to provide the City Council with a recommendation on whether or not undeveloped properties should also be charged a stormwater utility fee. After a six month facilitated process, the Advisory Committee recommended to not charge undeveloped properties.

The codified stormwater utility ordinance is located in Chapter 10.30 of PCC and can be viewed on the City's website below.

<http://www.codepublishing.com/WA/Pullman/>

### **Recent Activities**

2016 saw successful implementation of the City's Stormwater Management Program. Notable activities included:

#### **General Program Administration (including S5.A. and S9)**

- Continued management of and compliance with the City's NPDES Phase II Municipal Stormwater Permit. The City's primary coordination mechanism is an official department head meeting scheduled weekly, at which time barriers to Permit compliance can be discussed and eliminated (meetings not held on weeks when Council meetings are cancelled).
- Updated the City's Stormwater Management Program Plan.
- Completed Stormwater portion of the City of Pullman (COP) Public Works 2015 Annual Report.
- Represented Pullman at the *Stormwater Management Manual for Eastern Washington* (SWMMEW) update meetings (1/8, 10/25).
- Represented Pullman at the Eastern Washington Stormwater Group (EWSWG) regional coordination meetings (5/26, 9/15).
- Coordinated City Employee Goal Setting for 2016.
- Completed Highway Runoff Manual Training (1 staff - 3/22-3/23).
- Completed all 4 Ladder Safety Training Certifications (2 staff).
- Coordinated Ecology permit manager site visit (8/23).
- Coordinated with Ecology (Permit Implementation) – On-going.
- Coordinated with WSU (Secondary Permittee) – On-going.
- Coordinated with other Permittees (EWSWG) – On-going.
- Received a grant from Washington State Department of Ecology totaling \$25,000 for acquisition of asset inventory equipment and TMDL related water quality monitoring.

#### **Public Education & Outreach (S5.B.1.)**

- Pursued education and outreach efforts via website, news media, radio PSAs and

personal interaction with our customers.

- Partnered with PCEI, Pullman School District and private schools to integrate stormwater concepts into the 5<sup>th</sup> and 8<sup>th</sup> grade science curriculum, totaling 15 lessons delivered to 402 students.
- Other Stormwater K-12 Education
  - 2<sup>nd</sup> Grade Jefferson Elementary (6/2 - 75 students)
- Successfully implemented the Pullman Adopt-A-Stream Program. Stream Stewards were active on fifteen of the sixteen available segments. Stewards collectively participated in a total of 40 clean-up events throughout the year. Stormwater Services staff responded to 17 Steward requests for trash removal.
- Sponsored the 12<sup>th</sup> Annual Pullman Stream Clean-up event on April 16<sup>th</sup>. 268 volunteers spent a total of 804 hours cleaning Pullman streams by removing an estimated 6 cubic yards of litter and recyclables. Litter was removed from 4.4 miles of stream.
- Coordinated Missouri Flat Creek Riparian Restoration: WSU College of Agricultural, Human and Natural Resource Sciences (400 students).
- Coordinated independent volunteer stream clean-up on 4/2. 55 sorority members spent a total of 165 hours removing 2 cubic yards of trash & recyclables.
- Sponsored 1 WSU student intern seeking BS in Engineering (Spring 2016).
- Sponsored 1 Pullman High School Senior intern (Fall 2016).
- Mentored 1 WSU Senior Engineering Design student group project: *Whispering Hills 2.0 Underground Detention* (Spring 2016).
- Sponsored WSU Class Project – General Ecology (BIO 372): MFC Invertebrate Study
- Sponsored WSU Student Project – Leadership/Community (HD 415): Dog Doogity

#### **Public Involvement (S5.B.2.)**

- Posted Stormwater Management Program (SWMP) Plan on city website by May 31.
- Posted Phase II Municipal SW Permit 2015 Annual Report on city website by May 31.
- 2/23 – Prepared Council Meeting materials (Ecology Capacity Grant acceptance).
- 11/8 – Prepared response to Public Records Request.

#### **Illicit Discharge Detection & Elimination (S5.B.3. & G3)**

- Responded to, investigated, resolved and reported to Ecology 9 formal IDDE complaints.
- Responded to, investigated and resolved 24 other, non-IDDE related complaints including pet waste, solid waste, drainage, etc.
- Code Enforcement Action
  - Technical assistance provided. No formal action taken during this period.

#### **Construction Site Runoff Control (S5.B.4.)**

- Issued 83 City of Pullman Stormwater Permits for new and re-development projects.
- Reviewed 38 Site Plans and Stormwater Pollution Prevention Plans (SWPPPs) for large grading and new construction projects.
- Reviewed 76 Erosion and Sediment Control (ESC) plans for projects of Duplex size or smaller (mostly single family residential homes).

- Conducted 110 documented construction related erosion control inspections.
- Continued monitoring of an Inter-Agency agreement with WSU for regulation of Construction and Post-Construction activities. WSU EHS Dept. submits an annual report to Stormwater Services documenting these activities.
- Code Enforcement Action
  - Technical assistance provided. No formal action taken this period.

#### **Post-Construction Stormwater Management (S5.B.5.)**

- Reviewed 12 drainage reports and civil drawings of post-construction stormwater BMPs included in site plans for newly proposed development.
- Inspected 22 post-construction BMPs at 8 sites, during installation.
- Inspected 20 post-construction BMPs after project completion (within 5 years).
- Code Enforcement Action
  - Technical assistance provided. No formal action taken this period.
- Received 6 stormwater facility O&M plans.
- Completed construction of stormwater retrofits and Low Impact Development (LID) BMPs on 2 city owned parking lots (Neill Public Library & South Street Lot).
- Coordinated stormwater treatment BMP training for local design professionals (9/21).

#### **Municipal Operations and Maintenance (S5.B.6.)**

- Number of City Stormwater Facilities Inspected (excluding catch basins) – 10
  - Detention Ponds – 4
  - Treatment – 6
- Staff Training
  - Staff training (2): Stormwater Chemistry (9/12-9/14)
  - Staff training (6): Treatment BMP O&M (9/21)
- Spent an estimated 885.25 hours sweeping city streets (as reported by the M&O Division).
- Spent an estimated 1,311.25 hours on maintenance of the city's storm drain system (as reported by the M&O Division).
- Contact M&O Superintendent (Art Garro), Parks Superintendent (Alan Davis) and Public Works Director (Kevin Gardes) for additional information pertaining to municipal operations and facilities maintenance activities conducted in 2016.

#### **Compliance with TMDLs (S7)**

- Coordinated with Ecology's TMDL Lead on TMDL implementation.
- Coordinated with WSU-EHS on TMDL implementation.
- Continued implementation of pet waste management program, including:
  - Pet waste education/outreach radio PSAs.
  - Inspected and performed maintenance on 90 pet waste stations and 25 waste receptacles.
  - Installed 2 pet management signs by Lincoln Middle School.
  - 66 volunteer hours spent on pet waste stations in 2016 (filling with bags, removing waste, inspecting for damage, etc.).

- Completed DRAFT Dry Fork Creek (DFC) Fecal Coliform Bacteria Quality Assurance Project Plan (QAPP) and sent to Ecology for review.
- Completed Final DFC Fecal Coliform Bacteria QAPP and received approval by Ecology.
- Implemented DFC fecal coliform bacteria monitoring plan to assess progress toward TMDL waste load allocation reduction targets (2 samples taken at each of three sites, twice per month).
- Repaired and/or replaced public sanitary sewer lines and manholes (suspected fecal coliform bacteria sources) in nine locations, totaling 4,289 lineal feet and 26 manholes. Total cost: \$763,000.

Amount of sanitary sewer pipe repaired/replaced by drainage basin:

- Missouri Flat Creek - 2,573 LF
- Dry Fork Creek - 1,205 LF
- Hatley Creek - 511 LF

### **Monitoring and Assessment (S8)**

- Represented Pullman at the Effectiveness Monitoring meetings.
  - Regional Coordination - Moses Lake (1/28, 5/26)
  - Mobile Contractors Meeting (11/16)

### **Capital and Infrastructure Improvement Projects**

- Completed construction of stormwater retrofits and Low Impact Development (LID) BMPs on two city owned parking lots (Neill Public Library & South Street Lot), including:
  - 2 Bioretention Swales
  - 1 Filterra Tree Box
  - 1 Contech CDS Hydrodynamic Separator Manhole
  - Porous asphalt – 76 tons (approx. 3,500 ft<sup>2</sup>)
  - Permeable Interlocking Concrete Pavers – 8,505 ft<sup>2</sup>

### **The following Stormwater Management Program activities are planned for 2017:**

#### **General Program Administration (including S5.A. and S9)**

- Continue management of and compliance with the City's NPDES Phase II Municipal Stormwater Permit (Permit).
- Continue to track program costs, actions and activities.
- Continue to represent Pullman during the *Stormwater Management Manual for Eastern Washington* (SWMMEW) update process.
- Continue to represent Pullman on the Eastern Washington Stormwater Group (EWSWG).
- Coordinate with Ecology on Permit implementation.
- Coordinate with WSU on Permit implementation (Secondary Permittee).
- Coordinate with other Permittees (EWSWG).
- Complete and close-out \$25,000 grant from Ecology for acquisition of asset inventory equipment and TMDL related water quality monitoring.
- Complete Phase II Municipal SW Permit 2016 Annual Report by March 31<sup>st</sup>.

### **Public Education & Outreach (S5.B.1.)**

- Continue to implement the public education and outreach program strategy.
- Continue partnering with PCEI, the Pullman School District and private schools to challenge students with water quality and stormwater related exercises that complement the science curriculum in both the 5<sup>th</sup> and 8<sup>th</sup> grades.
- Partner with the Palouse Conservation District to provide Water-On-Wheels program lessons to Pullman 3<sup>rd</sup> graders (pilot for 2017).
- Continue partnering with PCEI to implement the Adopt-A-Stream program, where community groups and/or businesses can “adopt” a segment of stream in town and then be responsible for keeping it clean. Signage is installed to identify the groups and the program. As of January 1, 2017, all 16 of the identified segments of stream have been adopted, with 15 being actively cleaned.
- Continue partnering with PCEI by sponsoring the 13<sup>th</sup> Annual Stream Clean-up event in April. Other major partners involved in the Stream Clean-up include Pullman Parks & Recreation, Pullman Transit, Pullman Disposal Service, Pullman Civic Trust and numerous local businesses that donate food and other materials for the event.
- Continue coordination of Missouri Flat Creek Riparian Restoration Project: WSU College of Agricultural, Human and Natural Resource Sciences (~400 students).
- Sponsor 1 Pullman High School Senior intern (Spring 2017).

### **Public Involvement (S5.B.2.)**

- Post Stormwater Management Program (SWMP) Plan on city website by May 31.
- Post Phase II Municipal SW Permit 2015 Annual Report on city website by May 31.
- Prepare for and attend City Council Meetings.
- Respond to Public Records Requests.

### **Illicit Discharge Detection & Elimination (S5.B.3. & G3)**

- Continue implementing and enforcing PCC 10.31 to prohibit illicit discharges.
- Continue implementing the City’s IDDE compliance strategy.
- Provide IDDE training to municipal staff.
- Maintain and monitor the IDDE citizen hotline.
- Maintain a map of the City’s MS4.
- Respond to, investigate, resolve and report to Ecology formal IDDE events.
- Respond to, investigate and resolve other, non-IDDE related complaints including pet waste, solid waste, drainage, etc.

### **Construction Site Stormwater Runoff Control (S5.B.4.)**

- Continue implementing and enforcing construction related elements within PCC 10.32 to reduce pollutants from construction activities.
- Issue City of Pullman Stormwater Permits for new and re-development projects.
- Review Site Plans and Stormwater Pollution Prevention Plans (SWPPPs) for large grading and construction projects.
- Review Erosion and Sediment Control (ESC) plans for projects of Duplex size or smaller (mostly single family residential homes).
- Conduct construction related erosion control inspections.

- Continue administration of an Inter-Agency agreement with WSU for regulation of Construction and Post-Construction activities on campus. WSU's Environmental Health and Safety (EHS) Department submits an annual report to Stormwater Services in February documenting these activities.
- Provide training for City staff, and information on training to construction operators.

#### **Post-Construction Stormwater Management (S5.B.5.)**

- Continue implementing and enforcing post-construction elements within PCC 10.32.
- Review drainage reports and civil drawings of post-construction stormwater BMPs included in site plans for newly proposed development.
- Inspect post-construction BMPs at construction sites, during installation.
- Inspect post-construction BMPs after project completion (within 5 years).
- Ensure stormwater facility O&M plans are provided for large projects with post-construction BMPs.
- Provide information on post-construction BMPs for local design professionals.
- Update City Design Standards to require **retention** of the 10-year, 24-hour storm event and develop criteria to determine when it is infeasible for a project to meet this requirement.

#### **Municipal Operations and Maintenance (S5.B.6.)**

- Continue implementation of the City's Stormwater Operations and Maintenance (O&M) Plan.
- Inspect City stormwater treatment and flow control facilities.
- Spot check City stormwater treatment and flow control facilities after major storm events (10-year, 24-hour or larger).
- Perform maintenance on City stormwater facilities and infrastructure.
- Repair damaged City stormwater facilities and infrastructure.
- Update the City's Stormwater Operations and Maintenance Plan by December 31<sup>st</sup>.
- Develop Stormwater Pollution Prevention Plans (SWPPPs) for the City's material storage, heavy equipment storage and maintenance areas.
- Provide City staff training.

#### **Compliance with TMDLs (S7)**

- Coordinate with Ecology's TMDL Lead on TMDL implementation.
- Coordinate with WSU-EHS on TMDL implementation.
- Continue implementation of pet waste management program, including:
  - Pet waste education/outreach radio PSAs.
  - Inspect and perform maintenance on 90 pet waste stations and 25 waste receptacles.
  - Install pet management signs as needed.
  - Coordinate volunteer activities.
- Continue implementation of the Dry Fork Creek fecal coliform bacteria monitoring plan.
- Complete DRAFT Fecal Coliform Bacteria TMDL Waste Load Allocation (WLA) Progress Study QAPP and send to Ecology for review.

- Complete Final Fecal Coliform Bacteria TMDL WLA Progress Study QAPP and receive approval by Ecology.
- Implement Fecal Coliform Bacteria TMDL WLA Progress Study.
- By February 28<sup>th</sup>, develop and submit to Ecology a Four-Year Action Plan for stormwater outfalls not meeting the waste load allocation reduction targets.
- During the SEPA process, continue considering the potential for projects to increase runoff and sources of fecal coliform bacteria (City of Pullman Public Works and Planning Departments).
- Repair and/or replace 1,700 linear feet of public sanitary sewer lines and 5 sanitary sewer manholes suspected of being sources of fecal coliform bacteria to the City's stormwater system and/or surface waters.

Sanitary sewer projects planned for 2017 (by drainage basin):

- Dry Fork Creek
  - Mies Sanitary Sewer
  - Rocky Way Sanitary Sewer

**Monitoring and Assessment (S8)**

- Continue to collaborate with other Permittees during the Effectiveness Studies process.
- By June 30<sup>th</sup>, submit to Ecology 8 to 12 detailed study proposals for review and approval.

**Stormwater Capital and Infrastructure Improvement Projects**

Inspections of Pullman's MS4, both scheduled and a result of service requests have revealed a need for repair and/or replacement of portions of the City's stormwater infrastructure.

Stormwater infrastructure projects planned for 2017:

- Mies Storm
- Maple Street Path Storm
- Turner Storm

## **Contacts**

Questions about Pullman's Stormwater Management Program can be directed to:

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Stormwater Services Program Manager  
City of Pullman  
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Questions about the Eastern Washington Phase II Municipal Stormwater Permit can be directed to:

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Spokane, WA 99205  
(509) 329-3554  
[ddun461@ecy.wa.gov](mailto:ddun461@ecy.wa.gov)

## **References**

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Washington State Department of Ecology. 2006. *Frequently Asked Questions about Municipal Stormwater Permits*. Publication No. 06-10-005 (revised).

Washington State Department of Ecology. 2007. *Protecting Washington's Waters From Stormwater Pollution*. Publication No. 07-10-05.